Abstract Submitted
for the DNP07 Meeting of
The American Physical Society

Microscopic calculations of heavy-residue formation in quasielastic and deep-inelastic collisions below the Fermi energy. G.A. SOULIOTIS, D.V. SHETTY, S. GALANOPOULOS, S.J. YENNELLO, Cyclotron Institute, Texas A&M University — During the last several years we have undertaken a systematic study of heavy residues formed in quasi-elastic and deep- inelastic collisions near and below the Fermi energy [1,2]. Presently, we are exploring the possibility of extracting information on the dynamics by comparing our heavy residue data to calculations using microscopic models based on the quantum molecular dynamics approach (QMD). We have performed detailed calculations of QMD type using the recent version of the constrained molecular dynamics code CoMD of M. Papa [3]. CoMD is especially designed for reactions near the Fermi energy. It implements an effective interaction with a nuclear-matter compressibility of K=200 (soft EOS) with several forms of the density dependence of the nucleon-nucleon symmetry potential. CoMD imposes a constraint in the phase space occupation for each nucleon, thus restoring the Pauli principle at each time step of the collision. Results of the calculations and comparisons with our residue data will be presented and discussed in detail. [1] G.A. Souliotis et al., Phys. Rev. Lett. 91, 022701 (2003); Nucl. Instrum. Methods B 204 166 (2003). [2] G.A. Souliotis et al., Phys. Lett. B 588, 35 (2004). [3] M. Papa et al., Phys. Rev. C 64, 024612 (2001).

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Date submitted: 03 Jul 2007 Electronic form version 1.4